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Big Data in Finance

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CENTER ON FINANCE,
LAW, AND POLICY
UNIVERSITY OF MICHIGAN



OFFICE OF
FINANCIAL
RESEARCH

BIG DATA IN FINANCE

**Thursday and Friday,
October 27–28, 2016**

Hutchins Hall 100
University of Michigan
Law School

financelawpolicy.umich.edu

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Big Data in Finance

Thursday and Friday, October 27–28, 2016

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WELCOME

It is our pleasure to welcome you to Big Data in Finance, co-hosted by the Office of Financial Research and the University of Michigan Center on Finance, Law, and Policy. The recent financial crisis revealed the pressing need to develop better methods to understand and manage risk in the financial system. Big data can help market participants, regulators, and the public to see and better understand financial networks and interconnections in real time, and to use that information to enhance financial stability, increase transparency, and bolster consumer and investor protection. At the same time, big data raises important questions about consumer autonomy, privacy, and anti-discrimination norms.

Over the course of the next two days, this conference will draw from the fields of computer science, data science, engineering, economics, finance, law, and public policy to explore how big data can be used to enhance financial stability and address other challenges in financial markets.

The Center on Finance, Law, and Policy would like to thank the Smith Richardson Foundation, Omidyar Network, the University of Michigan College of Engineering, the University of Michigan Ross School of Business, the Michigan Institute for Data Science, and the University of Michigan Law School for their generous financial support of this conference. The Center on Finance, Law, and Policy also thanks Ron Glancz, Paul Lee, John Lummis, Bill Marcoux, and Stefan Tucker for their support.

We look forward to an engaging and productive conference.

Sincerely,

Richard Berner

Director

Office of Financial Research

U.S. Department of the Treasury

Michael S. Barr

Roy F. and Jean Humphrey Proffitt Professor of Law

University of Michigan Law School

Faculty Director

University of Michigan Center on Finance, Law, and Policy

THURSDAY, OCTOBER 27

All sessions will be held in Hutchins Hall 100, unless otherwise noted

- 8:00–8:30 AM Registration and Continental Breakfast
- 8:30–8:45 AM **Welcome and Conference Overview**
Michael S. Barr, *University of Michigan*
- 8:45–9:30 AM **Keynote Address**
Richard Berner, *U.S. Office of Financial Research*

PANEL I: DATA PRIVACY AND SECURITY

- 9:30–11:00 AM **Moderator, Alfred O. Hero**, *University of Michigan*
- Panelists**
John W. Carlson, *Financial Services Information Sharing and Analysis Center*
Jonathan Katz, *University of Maryland*
Michael Reitblat, *Forster*
Peter Swire, *Georgia Institute of Technology*
- 11:00–11:15 AM Break

PANEL II: DATA QUALITY, DATA GAPS, AND INFORMATION ARBITRAGE

- 11:15 AM–12:45 PM **Moderator, Amiyatosh Purnanandam**, *University of Michigan*
- Panelists**
Linda Avery, *Federal Reserve Bank of New York*
Robert B. Avery, *Federal Housing Finance Agency*
Stephen C. Daffron, *Motive Partners*
Patricia C. Mosser, *Columbia University*
- 12:45–1:45 PM **Lunch**
Lawyers Club Lounge, 551 South State Street

PANEL III: BIG QUESTIONS ABOUT BIG DATA

- 2:00–3:30 PM **Moderator, Michael S. Barr**, *University of Michigan*
- Panelists**
Thomas P. Brown, *Paul Hastings, LLC*
Kabir Kumar, *Omidyar Network*
Graham Steele, *U.S. Senate Committee on Banking, Housing, and Urban Affairs*
Marisabel Torres, *National Council of La Raza*
- 3:30–3:45 PM Break
- 3:45–4:00 PM **Introduction of Keynote Speaker**
Michael S. Barr, *University of Michigan*
- 4:00–5:00 PM **Keynote Address**
Sendhil Mullainathan, *Harvard University*

CONFERENCE SCHEDULE

FRIDAY, OCTOBER 28

All sessions will be held in Hutchins Hall 100, unless otherwise noted

8:15–8:45 AM Continental Breakfast

8:45–9:00 AM **Welcome and Reconvene**

PANEL IV: DATA SHARING AND TRANSPARENCY

9:00–10:30 AM **Moderator, Matthew D. Shapiro**, *University of Michigan*

Panelists

David Bholat, *Bank of England*

Deborah J. Lucas, *Massachusetts Institute of Technology*

Matthew P. Reed, *U.S. Office of Financial Research*

10:30–10:45 AM Break

PANEL V: DATA MODELING AND ANALYTICS

10:45 AM–12:15 PM **Moderator, H.V. Jagadish**, *University of Michigan*

Panelists

Lewis Alexander, *Nomura*

Sanjiv Das, *Santa Clara University*

Zachary G. Ives, *University of Pennsylvania*

Claire Monteleoni, *The George Washington University*

12:15–12:30 PM Lunch Pickup

CONFERENCE SCHEDULE

12:30–1:30 PM **Keynote Address**
Kara M. Stein, *U.S. Securities and Exchange Commission*

1:30–1:45 PM Break

PANEL VI: DATA INTEGRATION AND VISUALIZATION

1:45–3:15 PM **Moderator, Mark D. Flood**, *U.S. Office of Financial Research*

Panelists

Amol Deshpande, *University of Maryland*

Peter Sarlin, *Hanken School of Economics*

Aurel Schubert, *European Central Bank*

Margaret Varga, *University of Oxford*

3:15–3:30 PM Closing Remarks

Lewis Alexander is the managing director and U.S. chief economist at Nomura, a global investment bank. He has a broad base of experience in senior policymaking roles as well as past experience in the financial services industry. Prior to joining Nomura in 2011, he served as a counselor to U.S. Treasury Secretary Timothy Geithner, working on a wide range of domestic financial issues that included the Supervisory Capital Assessment Program (bank stress tests), the cost and effectiveness of the Troubled Asset Relief Program, and analysis and monitoring of systemic risk. He also led the initial effort to establish the Treasury Department's Office of Financial Research. Prior to that, he worked for Citigroup, first as the head of emerging market economics and later as chief economist. Before joining Citigroup, he served in the Division of International Finance of the Federal Reserve Board, including as deputy director. Prior to that, he was chief economist for the U.S. Department of Commerce.

Linda Avery is the chief data officer and head of statistics at the Federal Reserve Bank of New York. Previously, she was a managing director and vice president, specializing in technology, at Goldman Sachs. She has worked on legal entity identifier (LEI) issues and in 2010, she founded the Global LEI Trade Association, for which she then served as co-chair.

Robert B. Avery is the project director of the National Mortgage Database at the Federal Housing Finance Agency (FHFA). He joined the FHFA after retiring as a senior economist from the board of governors of the Federal Reserve System in 2012. Previously, he taught at Cornell University and Carnegie Mellon University. His work at the Federal Reserve focused on supervisory issues related to community affairs and bank supervision, and he coauthored a number of studies in these areas. He also was one of the founders of the tri-annual Survey of Consumer Finances and designed the loan sampling systems used for the Federal Reserve's examinations of small bank safety and soundness and for large syndicated loans. He heads a new inter-agency effort at the FHFA designed to create a comprehensive residential mortgage database to better serve supervisory and policy concerns.

Michael S. Barr is the Roy F. and Jean Humphrey Proffitt Professor of Law at the University of Michigan Law School, faculty director of the U-M Center on Finance, Law, and Policy, and a professor of public policy at U-M's Gerald R. Ford School of Public Policy. He teaches Financial Regulation, International Finance, and Financial Derivatives, and he cofounded Michigan Law's International Transactions Clinic and the Detroit Neighborhood Entrepreneurs Project of the Community and Economic Development Clinic. He also is a nonresident senior fellow at the Center for American Progress. He conducts large-scale empirical research regarding financial services, and researches and writes about a wide range of issues in domestic and international financial regulation. In 2009–2010, he served as the U.S. Department of the Treasury's assistant secretary for financial institutions, and was a key architect of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. He previously served as Treasury Secretary Robert E. Rubin's special assistant, as deputy assistant secretary of the Treasury, as special adviser to President Clinton, and as a special adviser and counselor on the policy planning staff at the U.S. Department of State.

Richard Berner is the director of the U.S. Office of Financial Research (OFR). Previously, he served as counselor to the secretary of the Treasury with responsibility for standing up the OFR. Before joining the Treasury in 2011, he was co-head of global economics at Morgan Stanley. He previously served as chief economist at Mellon Bank and as a member of Mellon's senior management committee. He also served as a senior economist for Morgan Stanley, Salomon Brothers, and Morgan Guaranty Trust Company, and as director of the Washington, D.C., office of Wharton Econometrics. For seven years, he worked on the research staff of the Federal Reserve Board in Washington. He also has been an adjunct professor of economics at Carnegie Mellon University and The George Washington University. He has been a member of the economic advisory panel of the Federal Reserve Bank of New York, the panel of economic advisers of the Congressional Budget Office, the executive committee and the board of directors of the National Bureau of Economic Research, and the advisory committee of the Bureau of Economic Analysis.

David Bholat leads a team of data scientists and researchers at Advanced Analytics, a big data division in the Bank of England that he helped to establish in 2014. The division is recognized as a leader among central banks in the area of big data, as noted in a recent *MIT Sloan Review* profile. He is a former Fulbright fellow whose publications in 2016 include "Modelling Metadata in Central Banks;" "Non-Performing Loans: Regulatory and Accounting Treatments of Assets;" "Peer-to-Peer Lending and Financial Innovation in the United Kingdom;" and "Accounting in Central Banks." Other previous publications relevant to the conference include "Text Mining for Central Banks;" "Big Data and Central Banks;" and "The Future of Central Bank Data."

Thomas P. Brown is a partner in the antitrust and competition and the global banking and payment systems practices at Paul Hastings LLP in San Francisco. His practice focuses on competition law and legal issues affecting the financial services industry. In addition to strategically advising payment systems and financial services clients across a broad spectrum of regulatory issues, he has litigated notable antitrust cases, including class actions, in the financial services industry for more than 15 years. Previously, he was vice president, senior counsel at Visa USA Inc. There he was responsible for managing the aftermath of the settlement in *In re Visa Check/MasterMoney Antitrust Litigation*, including the dozens of consumer class actions that were filed following the settlement. He also was deeply involved in the company's transformation from a co-op to a shareholder-owned company.

John W. Carlson is chief of staff of the Financial Services Information Sharing and Analysis Center (FS-ISAC) and the vice chair of the Financial Services Sector Coordinating Council. The FS-ISAC is a nonprofit corporation formed in 1999, funded by its 7,000 member organizations and focused on assuring the resilience and continuity of the global financial services infrastructure and individual firms against acts that could significantly impact the sector's ability to provide services critical to the orderly function of the global economy. Prior to joining FS-ISAC, he served as the executive vice president of BITS/Financial Services Roundtable and managing director of Morgan Stanley. He also served in a variety of roles at the Office of the Comptroller of the Currency, Office of Management and Budget, and Federal Reserve Bank of Boston.

Stephen C. Daffron is the founding partner of Motive Partners. Previously, he was the chief executive officer of Interactive Data, a private equity-owned firm that recently was sold to Intercontinental Exchange; global head of technology, operations, and data for Morgan Stanley; and chief operating officer at Renaissance Technologies. He was deeply involved in the creation of the earliest electronic trading systems used for commodity futures and options in the early 1990s, pioneered the operational processes that allowed the explosive growth in derivatives trading and processing, managed the integration of major acquisitions at Morgan Stanley and Goldman Sachs, oversaw the growth of the technology and operations that spring-boarded the prime brokerage business, and subsequently moved to the buy-side to supervise the growth of processing capability at the industry's most successful hedge fund. He has served on industry committees throughout his career and presently serves on the Treasury Department's Office of Financial Research Advisory Committee, as well as the board of advisors for the Yale School of Management International Center of Finance.

Sanjiv Das is the William and Janice Terry Professor of Finance at Santa Clara University's Leavey School of Business. He previously held faculty appointments at Harvard Business School and the University of California, Berkeley. He is a senior editor of the *Journal of Investment Management*, co-editor of the *Journal of Derivatives* and *The Journal of Financial Services Research*, and associate editor of other academic journals. Prior to being an academic, he was a vice president at Citibank, working in the derivatives business in the Asia-Pacific region. His current research interests include: the modeling of default risk, machine learning, social networks, derivatives pricing models, portfolio theory, and venture capital. He has published more than 80 articles in academic journals and is the author of *Derivatives: Principles and Practice* (McGraw-Hill, 2010). He currently serves as a senior fellow at the FDIC Center for Financial Research.

Amol Deshpande is a professor in the Department of Computer Science at the University of Maryland, with a joint appointment at the University of Maryland Institute for Advanced Computer Studies. His research interests include collaborative data science platforms, graph analytics, uncertain data management, adaptive query processing, data streams, and sensor networks. He is serving on the editorial boards for the *Journal of Distributed and Parallel Databases*, *ACM TODS Journal*, and *VLDB Journal*.

Mark D. Flood has taught finance and business at universities in the United States and Canada, and worked as a financial economist on issues of regulatory policy and risk management at the Federal Reserve Bank of St. Louis, the Office of Thrift Supervision, the Federal Housing Finance Board, and the Federal Housing Finance Agency. He was a founding member of the Committee to Establish a National Institute of Finance. He currently is a research principal in the U.S. Office of Financial Research. His research has appeared in a number of scholarly journals, including the *Review of Financial Studies*, the *Annual Review of Financial Economics*, *Quantitative Finance*, the *Journal of International Money and Finance*, and the *Federal Reserve Bank of St. Louis Review*, and in the two-volume *Handbook of Financial Data and Risk Information*.

Alfred O. Hero III is the John H. Holland Distinguished University Professor of Electrical Engineering and Computer Science and the R. Jamison and Betty Williams Professor of Engineering at the University of Michigan. He also is co-director of U-M's Institute for Data Science and has appointments, by courtesy, in the Department of Biomedical Engineering and the Department of Statistics. He is a fellow of the Institute of Electrical and Electronics Engineers (IEEE), and has served as president of the IEEE Signal Processing Society and as a member of the IEEE board of directors. His recent research interests are in high-dimensional spatiotemporal data, multimodal data integration, statistical signal processing, and machine learning. Of particular interest are applications to social networks, network security and forensics, computer vision, and personalized health.

Zachary G. Ives is a professor of computer and information science at the University of Pennsylvania, as well as the associate dean for masters and professional programs at Penn's School of Engineering and Applied Science. He is a cofounder of Blackfynn Inc., a company focused on enabling life sciences research and discovery through data integration. His research interests include data integration and sharing, managing big data, sensor networks, and data provenance and authoritativeness. He is an alumnus of the DARPA Computer Science Study Panel and Information Science and Technology advisory panel. He is the director of Penn's Singh Program in Networked and Social Systems Engineering, and he is a Penn Engineering Fellow. He is a coauthor of the textbook *Principles of Data Integration* (Morgan Kaufmann, 2012), and has been an associate editor for *Proceedings of the Very Large Database Endowment* and a program co-chair for Association for Computing Machinery's Special Interest Group on Management of Data.

H.V. Jagadish is the Bernard A. Galler Collegiate Professor of Electrical Engineering and Computer Science at the University of Michigan, and distinguished scientist at U-M's Institute for Data Science. Previously, he was head of the Database Research Department at AT&T Labs. He is well known for his broad-ranging research on information management, and has approximately 200 major papers and 37 patents. He is a fellow of the Association for Computing Machinery (ACM), which is known as the "first society in computing," and has served on the board of the Computing Research Association since 2009. He is a past associate editor for the *ACM Transactions on Database Systems* and has served as program chair for the ACM Special Interest Group on Management of Data annual conference as well as the ISMB conference. He also is a former trustee and past conference program chair of the Very Large Database Foundation (VLDB) and was the founding editor-in-chief of the *Proceedings of the VLDB Endowment*. Currently, he is editor of the *Morgan & Claypool Synthesis Lectures on Data Management*.

Jonathan Katz is a professor of computer science at the University of Maryland and director of the Maryland Cybersecurity Center. His research interests lie broadly in the fields of cryptography, privacy, and the science of cybersecurity, and he is a coauthor of the widely used textbook, *Introduction to Modern Cryptography* (Chapman and Hall/CRC, 2014), now in its second edition. He was a member of the DARPA Computer Science Study Group from 2009–2010 and currently serves on the steering committee for the Institute of Electrical and Electronics Engineers Cybersecurity Initiative, as well as on the State of Maryland Cybersecurity Council.

Kabir Kumar leads Omidyar Network's global policy and ecosystem building efforts. He is a former senior financial sector specialist at Consultative Group to Assist the Poor (CGAP), where he led the Digital Finance Plus initiative and coordinated efforts in key markets in South Asia. He also helped launch CGAP's program on technology-enabled business models for financial services and worked closely with some of the pioneering implementations in the mobile financial services space. He has been an adviser to banks, mobile network operators, technology companies, and investors in more than 15 countries in Asia, Africa, and Latin America. His work has been quoted in numerous media outlets including CNN, *The Banker*, *The Economist*, and NPR.

Deborah J. Lucas is the Sloan Distinguished Professor of Finance at the MIT Sloan School of Management and the director of the MIT Golub Center for Finance and Policy. Her recent research has focused on how to better measure and account for the costs and risks of government financial obligations. She also has published extensively in the areas of asset pricing and portfolio choice, the dynamic models of corporate finance, money and banking, and retirement policy. Previous appointments include assistant director at the Congressional Budget Office; professor at Northwestern University's Kellogg School of Management; chief economist at the Congressional Budget Office; and senior staff economist at the Council of Economic Advisers. She is an associate editor for the *AEJ-Policy*, the *Annual Review of Financial Economics*, and the *Journal of Financial Intermediation*. She also is a National Bureau of Economic Research research associate and serves on advisory boards for the Federal Reserve Bank of New York, the Urban Institute, and the U.S. Census Bureau.

Claire Monteleoni is an assistant professor of computer science at The George Washington University. Her Machine Learning Group is concerned with developing principled methods (known as algorithms) to automatically detect patterns in data. In this era of big data, the various forms of complexity inherent in real data sources increasingly pose challenges for machine learning algorithm design. The Machine Learning Group works on the design, analysis, and application of machine learning algorithms, motivated by problems in real data sources, including learning from data streams, learning from raw (unlabeled) data, learning from private data, and climate informatics: accelerating discovery in climate science with machine learning.

Patricia C. Mosser is a senior research scholar and senior fellow at Columbia University's School of International and Public Affairs and the director of a new initiative on central banking and financial policy. Previously, she was head of the Research and Analysis Center at the Office of Financial Research, U.S. Department of the Treasury. She spent more than 20 years at the Federal Reserve Bank of New York as both a researcher and monetary policy practitioner. She was a senior manager at the Fed's open market desk, overseeing market analysis, monetary policy implementation (including many crisis-related facilities), foreign exchange operations, and analysis of financial stability and reform. She previously served as an economist and manager in the New York Fed Research Department and as an assistant professor in the Economics Department at Columbia. She serves on the Bank of England's Macro Prudential Advisory Panel and previously was a member of the Deputies Committee of the Financial Stability Oversight Council and the Board of the American Economic Association's Committee on the Status of Women in the Economics Profession.

Sendhil Mullainathan is the Robert C. Waggoner Professor of Economics in the Faculty of Arts and Sciences at Harvard University. He has worked on poverty, behavioral economics, and a wide variety of topics, including the impact of poverty on mental bandwidth, whether CEO pay is excessive, using fictitious resumes to measure discrimination, showing that higher cigarette taxes makes smokers happier, modeling how competition affects media bias, and a model of coarse thinking. His latest research focuses on using machine learning to better understand human behavior. He recently coauthored *Scarcity: Why Having too Little Means so Much* (Times Books, 2013) and writes regularly for *The New York Times*. He also cofounded a nonprofit to apply behavioral science (ideas42) and a center to promote the use of randomized control trials in development (the Abdul Latif Jameel Poverty Action Lab). He serves on the board of the MacArthur Foundation (and is the recipient of a MacArthur Fellowship), has worked in government in various roles, is affiliated with the National Bureau of Economic Research and the Bureau of Research in Economic Analysis of Development, and is a member of the American Academy of Arts and Sciences.

Amiyatosh Purnanandam is a professor of finance at the University of Michigan Ross School of Business. His research covers a wide range of topics in corporate finance, banking, and credit risk. His recent research work is mostly related to banking, subprime mortgage crisis, and incentives of government agencies. These papers analyze causes and consequences of financial crisis, measurement and reporting of risk in banking sector, incentive issues in securitization markets, and the effect of market pressure on bureaucracies' actions. Some of his earlier work has analyzed the effect of default risk on corporate financial policies, and equity returns. In addition, several of his papers focus on corporate financing decisions involving IPOs and SEOs. His research has been published in leading journals such as the *Journal of Financial Economics*, the *Journal of Finance*, the *Review of Financial Studies*, the *Journal of Monetary Economics*, and the *Review of Finance*. He currently serves as an associate editor of the *Review of Financial Studies*, the *Journal of Financial Intermediation*, and the *International Review of Finance*.

Matthew P. Reed is chief counsel for the U.S. Office of Financial Research. He also is chairman of the Regulatory Oversight Committee of the global Legal Entity Identifier system, a committee of more than 50 authorities from around the globe overseeing a new system of financial entity identification. Previously, he was a senior lawyer at the Securities and Exchange Commission (SEC), where he held a range of positions, including overseeing legal issues for the SEC's interactive data-filing program and deputy for the chairman's initiative to use technology to transform financial disclosures and reporting. He also was a lead investigator in an SEC case involving Enron Corp.'s attorneys and was an adviser to an SEC commissioner. His previous public service work included positions as an adviser to a U.S. senator and lead trial counsel on dozens of cases for the U.S. Department of Justice.

Michael Reitblat is the cofounder and CEO of Forter. Previously, he was the vice president of product and international operations at Pango Parking, where he was in charge of the deployment and adoption of mobile wallet technologies worldwide. In 2008, before its acquisition by PayPal, he led product at Fraud Sciences, where he faced some of the most challenging questions in the cyber security ecosystem. His fascination with online fraudsters began after a successful "self-experimentation with the Internet" phase as a teenager and an even more successful period of service as an intelligence officer in the early days of the Israeli Cyber Command.

Peter Sarlin is an associate professor of economics at Hanken School of Economics in Helsinki and director of RiskLab Finland. Currently, he is a visiting scholar with the Center of Excellence SAFE at Goethe University in Frankfurt and a research associate with the Systemic Risk Center at the London School of Economics, the IWH Halle Institute for Economic Research, and the Systemic Risk Hub. He also is a board member of the IEEE Analytics and Risk Technical Committee and the IEEE Computational Finance and Economics Technical Committee. He is an associate editor of the *Journal of Network Theory in Finance* and *Intelligent Systems in Accounting, Finance and Management* and the author of *Mapping Financial Stability* (Springer, 2014). He has been a financial stability expert and external consultant with the European Central Bank, Bank of Finland, Deutsche Bundesbank, and De Nederlandsche Bank, among others. His current research interests include systemic risk, macroprudential supervision, machine learning, and visual analytics.

Aurel Schubert is the director of general statistics at the European Central Bank and chairman of the statistics committee of the European System of Central Banks. He also is chairman of the Contact Group on Data of the European Systemic Risk Board. Previously, he worked for 25 years at the Oesterreichische Nationalbank, including 13 years as director of statistics. He is (and was) a member of several Austrian and European statistical bodies. He is an honorary professor for economics of the University of Economics and Business in Vienna and a lecturer at several academic institutions. His publications include *The Credit-Anstalt Crisis of 1931* (Cambridge University Press, 1991), as well as more than 50 articles on central banking, European monetary policy, statistics, and monetary history.

Matthew D. Shapiro is the Lawrence R. Klein Collegiate Professor of Economics at the University of Michigan and a research professor at U-M's Survey Research Center. He is editor of the *American Economic Journal: Economic Policy* and a research associate of the National Bureau of Economic Research. His current research interests include modeling saving, retirement, health, insurance, and portfolio choices of older Americans; using surveys to address questions in macroeconomics and individual decision making; modeling how changes in tax policy affect consumption, investment, employment, and output; improving the quality of national economic statistics; and using naturally-occurring data such as account records and social media to measure and understand economic activity. Prior to joining U-M, he was an assistant professor of economics at Yale University and a member of the Cowles Foundation for Research in Economics. He previously served on the Council of Economic Advisers, including as senior economist, and currently is chair of the Federal Economic Statistics Advisory Committee. He also is a member of the Academic Advisory Panel of the Federal Reserve Bank of Chicago and chaired the American Economic Association Committee on Economic Statistics.

Kara M. Stein was appointed by President Obama to the U.S. Securities and Exchange Commission (SEC) in 2013, and serves as commissioner. At the SEC, she has advocated for strong investor protections and for initiatives to further increase competition and facilitate capital formation. She has focused on identifying ways to enhance our securities market structure to promote efficiency and resiliency and has advocated for updating the Commission's rules and practices for the Digital Age, including calling for the formation of a Digital Disclosure Task Force to aid in the Commission's assessment of the nature, timing, and delivery of information to a variety of investors and other market participants. She also has advocated for the formation of an Office of Data Strategy and a chief data officer to concentrate on the governance and utilization of information in a data-driven environment. She joined the Commission after serving as senior policy adviser for securities and banking matters to U.S. Senator Jack Reed. Prior to that, she was staff director of the Securities, Insurance, and Investment Subcommittee of the U.S. Senate Committee on Banking, Housing, and Urban Affairs, where she played an integral role in drafting and negotiating significant provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act.

Graham Steele is chief counsel of the U.S. Senate Committee on Banking, Housing, and Urban Affairs. He previously covered financial services and housing issues for U.S. Senator Sherrod Brown and was policy counsel at Public Citizen.

Peter Swire is the Nancy J. and Lawrence P. Huang Professor of Law and Ethics at the Georgia Tech Scheller College of Business. He has appointments by courtesy with the College of Computing and School of Public Policy. He also is senior counsel with Alston & Bird LLP. He has served as one of five members of President Obama's Review Group on Intelligence and Communications Technology. Prior to that, he was co-chair of the global Do Not Track process for the World Wide Web Consortium. He is senior fellow with the Future of Privacy Forum and a policy fellow with the Center for Democracy and Technology. Under President Clinton, he was the chief counselor for privacy in the U.S. Office of Management and Budget. He is the only U.S. government official to date to have government-wide responsibility for privacy policy, and his activities included being the White House coordinator for the HIPAA medical privacy rule, chairing a White House task force on how to update wiretap laws for the Internet age, and helping negotiate the U.S.-E.U. Safe Harbor agreement for trans-border data flows. Under President Obama, he served as special assistant to the president for economic policy.

Marisabel Torres is a senior policy analyst of the Wealth-Building Policy Project at National Council of La Raza. Her research interests include Latino access to financial products and services, immigrant financial engagement, and Latino homeownership and foreclosure prevention.

Margaret Varga is chairman of the NATO Exploratory Visual Analytics Research Task Group, a director at Seetru Ltd., and a visiting fellow at the University of Oxford. Her research interests are in visual analytics, visualization, uncertainty analysis, network analysis, big data analysis, provenance analysis and visualization, Bayesian reasoning, evidential reasoning, decision support, pattern processing, image processing, and financial systemic risk and stability monitoring. She also has a major interest in medical image processing. She led the team that developed the world's first automated breast cancer histopathology diagnosis systems, and holds seven patents for this system. She has more than 100 publications.

ABOUT THE SPONSORS



The Center on Finance, Law, and Policy is an interdisciplinary research center at the University of Michigan focused on creating a financial system that is safer, fairer, and better harnessed to the real economy. The Center facilitates interdisciplinary collaborations, supports student and faculty research, and helps turn research into action by connecting Michigan scholars to leaders in the public and private sectors.

To hear about upcoming events, our latest research, and more, join our email list at financelawpolicy.umich.edu/get-involved. Find us on Facebook at University of Michigan Center on Finance, Law, and Policy, and follow us on Twitter, @MichiganCFLP.



The Office of Financial Research (OFR) promotes financial stability by looking across the financial system to measure and analyze risks, perform essential research, and collect and standardize financial data. The OFR's job is to shine a light in the dark corners of the financial system to see where risks are; assess how much of a threat they might pose; and provide policymakers with financial analysis, information, and evaluation of policy tools to mitigate them. The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 established the OFR to support the Financial Stability Oversight Council, the Council's member organizations, and the public. To learn more about the OFR, visit www.financialresearch.gov.



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